



#11

<110> YU, LEI

<120> MU OPIOID RECEPTOR: COMPOSITIONS AND METHODS

<130> INDA:002USD1

<140> 09/841,720

<141> 2001-04-24

<150> 08/120,601

<151> 1993-09-13

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<170> PatentIn Ver. 2.1

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agcctaccta gtccgcagca ggccttcagc acc atg gac agc agc acc ggc cca 234
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ggg aac acc agc gac tgc tca gac ccc tta gct cag gca agt tgc tcc 282
Gly Asn Thr Ser Asp Cys Ser Asp Pro Leu Ala Gln Ala Ser Cys Ser
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Pro Ala Pro Gly Ser Trp Leu Asn Leu Ser His Val Asp Gly Asn Gln
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Ser Asp Pro Cys Gly Leu Asn Arg Thr Gly Leu Gly Gly Asn Asp Ser
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Leu Cys Pro Gln Thr Gly Ser Pro Ser Met Val Thr Ala Ile Thr Ile
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atg gcc ctc tac tct atc gtg tgt gta gtg ggc ctc ttc gga aac ttc 474

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Leu	Val	Met	Tyr	Val	Ile	Val	Arg	Tyr	Thr	Lys	Met	Lys	Thr	Ala	Thr		
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Asn	Ile	Tyr	Ile	Phe	Asn	Leu	Ala	Leu	Ala	Asp	Ala	Leu	Ala	Thr	Ser		
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aca	ctg	ccc	ttt	cag	agt	gtc	aac	tac	ctg	atg	gga	aca	tgg	ccc	ttc	618	
Thr	Leu	Pro	Phe	Gln	Ser	Val	Asn	Tyr	Leu	Met	Gly	Thr	Trp	Pro	Phe		
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Gly	Thr	Ile	Leu	Cys	Lys	Ile	Val	Ile	Ser	Ile	Asp	Tyr	Tyr	Asn	Met		
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ttc	acc	agc	ata	ttc	acc	ctc	tgc	acc	atg	agc	gtg	gac	cgc	tac	att	714	
Phe	Thr	Ser	Ile	Phe	Thr	Leu	Cys	Thr	Met	Ser	Val	Asp	Arg	Tyr	Ile		
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Ala	Val	Cys	His	Pro	Val	Lys	Ala	Leu	Asp	Phe	Arg	Thr	Pro	Arg	Asn		
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gcc	aaa	atc	gtc	aac	gtc	tgc	aac	tgg	atc	ctc	tct	tct	gcc	atc	ggc	810	
Ala	Lys	Ile	Val	Asn	Val	Cys	Asn	Trp	Ile	Leu	Ser	Ser	Ala	Ile	Gly		
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gat	tgc	acc	ctc	acg	ttc	tcc	cac	cca	acc	tgg	tac	tgg	gag	aac	ctg	906	
Asp	Cys	Thr	Leu	Thr	Phe	Ser	His	Pro	Thr	Trp	Tyr	Trp	Glu	Asn	Leu		
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ctc	aaa	atc	tgt	gtc	ttt	atc	ttc	gct	ttc	atc	atg	ccg	atc	ctc	atc	954	
Leu	Lys	Ile	Cys	Val	Phe	Ile	Phe	Ala	Phe	Ile	Met	Pro	Ile	Leu	Ile		
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Arg	Met	Val	Leu	Val	Val	Ala	Val	Phe	Ile	Val	Cys	Trp	Thr	Pro			
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 Ile His Ile Tyr Val Ile Ile Lys Ala Leu Ile Thr Ile Pro Glu Thr
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aca ttt cag acc gtt tcc tgg cac ttc tgc att gct ttg ggt tac acg 1194
 Thr Phe Gln Thr Val Ser Trp His Phe Cys Ile Ala Leu Gly Tyr Thr
 315 320 325

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 Asn Ser Cys Leu Asn Pro Val Leu Tyr Ala Phe Leu Asp Glu Asn Phe
 330 335 340

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 Lys Arg Cys Phe Arg Glu Phe Cys Ile Pro Thr Ser Ser Thr Ile Glu
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cag caa aac tcc act cga gtc cgt cag aac act agg gaa cat ccc tcc 1338
 Gln Gln Asn Ser Thr Arg Val Arg Gln Asn Thr Arg Glu His Pro Ser
 360 365 370 375

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 Thr Ala Asn Thr Val Asp Arg Thr Asn His Gln Leu Glu Asn Leu Glu
 380 385 390

gca gaa act gct cca ttg ccc taactgggtc tcacaccatc cagaccctcg 1437
 Ala Glu Thr Ala Pro Leu Pro
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ctaagcttag aggcgcgcat ctacgtggaa tcaggttgct gtcaggggtgt gtgggaggct 1497

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Gly Leu Gly Gly Asn Asp Ser Leu Cys Pro Gln Thr Gly Ser Pro Ser
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Met Val Thr Ala Ile Thr Ile Met Ala Leu Tyr Ser Ile Val Cys Val

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Val Gly Leu Phe Gly Asn Phe Leu Val Met Tyr Val Ile Val Arg Tyr	85	90	95
Thr Lys Met Lys Thr Ala Thr Asn Ile Tyr Ile Phe Asn Leu Ala Leu	100	105	110
Ala Asp Ala Leu Ala Thr Ser Thr Leu Pro Phe Gln Ser Val Asn Tyr	115	120	125
Leu Met Gly Thr Trp Pro Phe Gly Thr Ile Leu Cys Lys Ile Val Ile	130	135	140
Ser Ile Asp Tyr Tyr Asn Met Phe Thr Ser Ile Phe Thr Leu Cys Thr	145	150	155
Met Ser Val Asp Arg Tyr Ile Ala Val Cys His Pro Val Lys Ala Leu	165	170	175
Asp Phe Arg Thr Pro Arg Asn Ala Lys Ile Val Asn Val Cys Asn Trp	180	185	190
Ile Leu Ser Ser Ala Ile Gly Leu Pro Val Met Phe Met Ala Thr Thr	195	200	205
Lys Tyr Arg Gln Gly Ser Ile Asp Cys Thr Leu Thr Phe Ser His Pro	210	215	220
Thr Trp Tyr Trp Glu Asn Leu Leu Lys Ile Cys Val Phe Ile Phe Ala	225	230	235
Phe Ile Met Pro Ile Leu Ile Ile Thr Val Cys Tyr Gly Leu Met Ile	245	250	255
Leu Arg Leu Lys Ser Val Arg Met Leu Ser Gly Ser Lys Glu Lys Asp	260	265	270
Arg Asn Leu Arg Arg Ile Thr Arg Met Val Leu Val Val Val Ala Val	275	280	285
Phe Ile Val Cys Trp Thr Pro Ile His Ile Tyr Val Ile Ile Lys Ala	290	295	300
Leu Ile Thr Ile Pro Glu Thr Thr Phe Gln Thr Val Ser Trp His Phe	305	310	315
Cys Ile Ala Leu Gly Tyr Thr Asn Ser Cys Leu Asn Pro Val Leu Tyr	325	330	335
Ala Phe Leu Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe Cys Ile	340	345	350
Pro Thr Ser Ser Thr Ile Glu Gln Gln Asn Ser Thr Arg Val Arg Gln	355	360	365

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cgg gct tgg cgg gaa cga cag cct gtg ccc tca gac cgg cag ccc ttc 404
 Arg Ala Trp Arg Glu Arg Gln Pro Val Pro Ser Asp Arg Gln Pro Phe
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cat ggt cac agc cat tac cat cat ggc cct cta ctc tat cgt gtg tgt 452
 His Gly His Ser His Tyr His His Gly Pro Leu Leu Tyr Arg Val Cys
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agt ggg cct ctt cgg aaa ctt cct ggt cat gta tgt gat tgt aag ata 500
 Ser Gly Pro Leu Arg Lys Leu Pro Gly His Val Cys Asp Cys Lys Ile
 40 45 50

cac caa aat gaa gac tgc cac caa cat cta cat ttt caa cct tgc tct 548
 His Gln Asn Glu Asp Cys His Gln His Leu His Phe Gln Pro Cys Ser
 55 60 65 70

ggc aga cgc ctt agc gac cag tac act gcc ctt tca gag tgt caa cta 596
 Gly Arg Arg Leu Ser Asp Gln Tyr Thr Ala Leu Ser Glu Cys Gln Leu
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cct gat ggg aac atg gcc ctt cgg aac cat cct ctg caa gat cgt gat 644
 Pro Asp Gly Asn Met Ala Leu Arg Asn His Pro Leu Gln Asp Arg Asp
 90 95 100

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Leu Asn Arg Leu Leu Gln His Val His Gln His Ile His Pro Leu His	
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cat gag cgt gga ccg cta cat tgc tgt ctg cca ccc agt caa agc cct	740
His Glu Arg Gly Pro Leu His Cys Cys Leu Pro Pro Ser Gln Ser Pro	
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Gly Phe Pro Tyr Pro Pro Lys Cys Gln Asn Arg Gln Arg Leu Gln Leu	
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gat cct ctc ttc tgc cat cgg tct gcc tgt aat gtt cat ggc aac cac	836
Asp Pro Leu Phe Cys His Arg Ser Ala Cys Asn Val His Gly Asn His	
155 160 165	
aaa ata cag gca ggg gtc cat aga ttg cac cct cac gtt ctc cca ccc	884
Lys Ile Gln Ala Gly Val His Arg Leu His Pro His Val Leu Pro Pro	
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Asn Leu Val Leu Gly Glu Pro Ala Gln Asn Leu Cys Leu Tyr Leu Arg	
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Phe His His Ala Asp Pro His His His Cys Val Leu Arg Pro Asp Asp	
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ctt acg act caa gag cgt tcg cat gct atc ggg ctc caa aga aaa gga	1028
Leu Thr Thr Gln Glu Arg Ser His Ala Ile Gly Leu Gln Arg Lys Gly	
215 220 225 230	
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Gln Glu Ser Ala Gln Asp His Pro Asp Gly Ala Gly Gly Arg Gly Cys	
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att tat cgt ctg ctg gac ccc cat cca cat cta cgt cat cat caa agc	1124
Ile Tyr Arg Leu Leu Asp Pro His Pro His Leu Arg His His Gln Ser	
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gct gat cac gat tcc aga aac cac att tca gac cgt ttc ctg gca ctt	1172
Ala Asp His Asp Ser Arg Asn His Ile Ser Asp Arg Phe Leu Ala Leu	
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Leu His Cys Phe Gly Leu His Glu Gln Leu Pro Glu Ser Ser Ser Leu	
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Arg Leu Pro Gly	
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35 40 45

Val Cys Asp Cys Lys Ile His Gln Asn Glu Asp Cys His Gln His Leu
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His Phe Gln Pro Cys Ser Gly Arg Arg Leu Ser Asp Gln Tyr Thr Ala
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Leu Ser Glu Cys Gln Leu Pro Asp Gly Asn Met Ala Leu Arg Asn His
85 90 95

Pro Leu Gln Asp Arg Asp Leu Asn Arg Leu Leu Gln His Val His Gln
100 105 110

His Ile His Pro Leu His His Glu Arg Gly Pro Leu His Cys Cys Leu
115 120 125

Pro Pro Ser Gln Ser Pro Gly Phe Pro Tyr Pro Pro Lys Cys Gln Asn
130 135 140

Arg Gln Arg Leu Gln Leu Asp Pro Leu Phe Cys His Arg Ser Ala Cys
145 150 155 160

Asn Val His Gly Asn His Lys Ile Gln Ala Gly Val His Arg Leu His
165 170 175

Pro His Val Leu Pro Pro Asn Leu Val Leu Gly Glu Pro Ala Gln Asn
180 185 190

Leu Cys Leu Tyr Leu Arg Phe His His Ala Asp Pro His His His Cys
195 200 205

Val Leu Arg Pro Asp Asp Leu Thr Thr Gln Glu Arg Ser His Ala Ile

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Ala Gly Gly Arg Gly Cys Ile Tyr Arg Leu Leu Asp Pro His Pro His				
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Leu Arg His His Gln Ser Ala Asp His Asp Ser Arg Asn His Ile Ser				
	260		265	270
Asp Arg Phe Leu Ala Leu Leu His Cys Phe Gly Leu His Glu Gln Leu				
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Pro Glu Ser Ser Ser Leu Arg Leu Pro Gly				
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Ala Ile Ala Ile Thr Ala Leu Tyr Ser Ala Val Cys Ala Val Gly Leu
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Leu Gly Asn Val Leu Val Met Phe Gly Ile Val Arg Tyr Thr Lys Leu
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Tyr	Tyr	Asn	Met	Phe	Thr	Ser	Ile	Phe	Thr	Leu	Thr	Met	Met	Ser	Val
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Asp	Arg	Tyr	Ile	Ala	Val	Cys	His	Pro	Val	Lys	Ala	Leu	Asp	Phe	Arg
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Thr	Pro	Ala	Lys	Ala	Lys	Leu	Ile	Asn	Ile	Cys	Ile	Trp	Val	Leu	Ala
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Ser	Gly	Val	Gly	Val	Pro	Ile	Met	Val	Met	Ala	Val	Thr	Gln	Pro	Arg
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Asp	Gly	Ala	Val	Val	Cys	Met	Leu	Gln	Phe	Pro	Ser	Pro	Ser	Trp	Tyr
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Trp	Asp	Thr	Val	Thr	Lys	Ile	Cys	Val	Phe	Ile	Phe	Ala	Phe	Val	Val
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Arg	Ser	Val	Arg	Leu	Leu	Ser	Gly	Ser	Lys	Glu	Lys	Asp	Arg	Ser	Leu
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Arg	Arg	Ile	Thr	Arg	Met	Val	Leu	Val	Val	Val	Gly	Ala	Phe	Val	Val
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Cys	Trp	Ala	Pro	Ile	His	Ile	Phe	Val	Ile	Val	Trp	Thr	Leu	Val	Asp
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Gly Ala Ala Asp Gly Met Glu Glu Pro Gly Arg Asn Leu Ser Gln Asn
35 40 45

Gly Thr Leu Ser Glu Gly Gln Gly Ser Ala Ile Leu Ile Ser Phe Ile
50 55 60

Tyr Ser Val Val Cys Leu Val Gly Leu Cys Gly Asn Ser Met Val Ile
65 70 75 80

Tyr Val Ile Leu Arg Tyr Ala Lys Met Lys Thr Ala Thr Asn Ile Tyr
85 90 95

Ile Leu Asn Leu Ala Ile Ala Asp Glu Leu Leu Met Leu Ser Val Pro
100 105 110

Phe Leu Val Thr Ser Thr Leu Leu Arg His Trp Pro Phe Gly Ala Leu
115 120 125

Leu Cys Arg Leu Val Leu Ser Val Asp Ala Tyr Asn Met Phe Thr Ser
130 135 140

Ile Tyr Cys Leu Thr Val Leu Ser Val Asp Arg Tyr Val Ala Val Val
145 150 155 160

His Pro Ile Lys Ala Ala Arg Tyr Arg Arg Pro Thr Val Ala Lys Val
165 170 175

Val Asn Leu Gly Val Trp Val Leu Ser Leu Leu Val Ile Leu Pro Ile
180 185 190

Val Val Phe Ser Arg Thr Ala Ala Asn Ser Asp Gly Thr Val Ala Cys
195 200 205

Asn Met Leu Met Pro Glu Pro Ala Gln Arg Trp Leu Val Gly Phe Val
210 215 220

Leu Tyr Thr Phe Leu Met Gly Phe Leu Leu Pro Val Gly Ala Ile Cys
225 230 235 240

Leu Cys Tyr Val Leu Ile Ile Ala Lys Met Arg Met Val Ala Leu Lys
245 250 255

Ala Gly Trp Gln Gln Arg Lys Arg Ser Glu Arg Lys Ile Thr Leu Met
260 265 270

Val Met Met Val Val Met Val Phe Val Ile Cys Trp Met Pro Phe Tyr
275 280 285

Val Val Gln Leu Val Asn Val Phe Ala Glu Gln Asp Asp Ala Thr Val
290 295 300

Ser Gln Leu Ser Val Ile Leu Gly Tyr Ala Asn Ser Cys Ala Asn Pro
305 310 315 320

Ile Leu Tyr Gly Phe Leu Ser Asp Asn Phe Lys Arg Ser Phe Gln Arg
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Ile Leu Cys Leu Ser Trp Met Asp Asn Ala Ala Glu Glu Pro Val Asp
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Tyr Tyr Ala Thr Ala Leu Lys Ser Arg Ala Tyr Ser Val Glu Asp Phe
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Gln Thr Glu Pro Tyr Tyr Asp Met Thr Ser Asn Ala Val Leu Thr Phe
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Ile Tyr Phe Val Val Cys Val Val Gly Leu Cys Gly Asn Thr Leu Val
50 55 60

Ile Tyr Val Ile Leu Arg Tyr Ala Lys Met Lys Thr Ile Thr Asn Ile
65 70 75 80

Tyr Ile Leu Asn Leu Ala Ile Ala Asp Glu Leu Phe Met Leu Gly Leu
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Pro Phe Leu Ala Met Gln Val Ala Leu Val His Trp Pro Phe Gly Lys
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Ala Ile Cys Arg Val Val Met Thr Val Asp Gly Ile Asn Gln Phe Thr

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Ile Met Ile Tyr Ala Gly Leu Arg Ser Asn Gln Trp Gly Arg Ser Ser 180 185 190		
Cys Thr Ile Asn Trp Pro Gly Glu Ser Gly Ala Trp Tyr Thr Gly Phe 195 200 205		
Ile Ile Tyr Ala Phe Ile Leu Gly Phe Leu Val Pro Leu Thr Ile Ile 210 215 220		
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Arg Val Gly Ser Ser Lys Arg Lys Lys Ser Glu Lys Lys Val Thr Arg 245 250 255		
Met Val Ser Ile Val Val Ala Val Phe Ile Phe Cys Trp Leu Pro Phe 260 265 270		
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Ala Leu Lys Gly Met Phe Asp Phe Val Val Ile Leu Thr Tyr Ala Asn 290 295 300		
Ser Cys Ala Asn Pro Ile Leu Tyr Ala Phe Leu Ser Asp Asn Phe Lys 305 310 315 320		
Lys Ser Phe Gln Asn Val Leu Cys Leu Val Lys Val Ser Gly Ala Glu 325 330 335		
Asp Gly Glu Arg Ser Asp Ser Lys Gln Asp Lys Ser Arg Leu Asn Glu 340 345 350		
Thr Thr Glu Thr Gln Arg Thr Leu Leu Asn Gly Asp Leu Gln Thr Ser 355 360 365		
Ile		